

WHO DISCOVERED SMALLPOX VACCINATION? EDWARD JENNER OR BENJAMIN JESTY?

JAMES F. HAMMARSTEN, M.D.*; AND (BY INVITATION) WILLIAM TATTERSALL, M.D.**; AND JAMES E. HAMMARSTEN, M.D.***

BOISE

Early one morning in January, 1877, Captain (Brevet Major) Patrick Collins, knocked on the door of Quarters 4, at Fort Boise, Idaho Territory. The Fort was established in 1863, near the Oregon Trail to protect the westward travellers and the miners at the newly discovered gold fields in Idaho City. Quarters 4 was then the dwelling of the Post Surgeon and is now our home. The Captain summoned the Post Surgeon to examine his son, Thomas, age 8, who was ill.¹

The doctor went a few doors to Captain Collin's home, examined the son and came running out of the house screaming "small pox! small pox!" The house was quarantined. Thomas died on January 8, 1877. He was placed in a sack and deposited outside the house. Two soldiers lassoed the sack and dragged Thomas to his grave in the nearby military cemetery.

John, age 3, died on January 12; Charles, age 1, on January 13; and William, age 5, on January 14. All were sacked, lassoed, and dragged to their graves (Figure 1). The father was killed in November when he was thrown out of an army wagon in a runaway accident. The fate of the grief-stricken mother and wife is not known.

This sad tale of a century ago was oftentimes repeated around the world through the centuries.

Small pox has now been eliminated. It is to be hoped that the last death occurred in London on September 11, 1978, a laboratory-acquired infection.^{2, 3} All would agree that the eradication of this dread disease is directly related to the use of small pox vaccination.

Edward Jenner is given credit for the discovery of small pox vaccination. The title of this paper raises the question of the role of Benjamin Jesty in this discovery.

Benjamin Jesty was a farmer in Dorset, England. He is buried at the

* Department of Medicine, University of Washington, Seattle, Washington, and the Boise Veterans Administration Medical Center, Boise, Idaho; ** Royal National Hospital, Bournemouth, England; and *** from the Mayo Clinic and the Mayo Medical School, Rochester, Minnesota.

Requests for reprints should be addressed to James F. Hammarsten, M.D., Medical Service, Boise Veterans Administration Medical Center, Fifth and Fort Streets, Boise, Idaho 83702

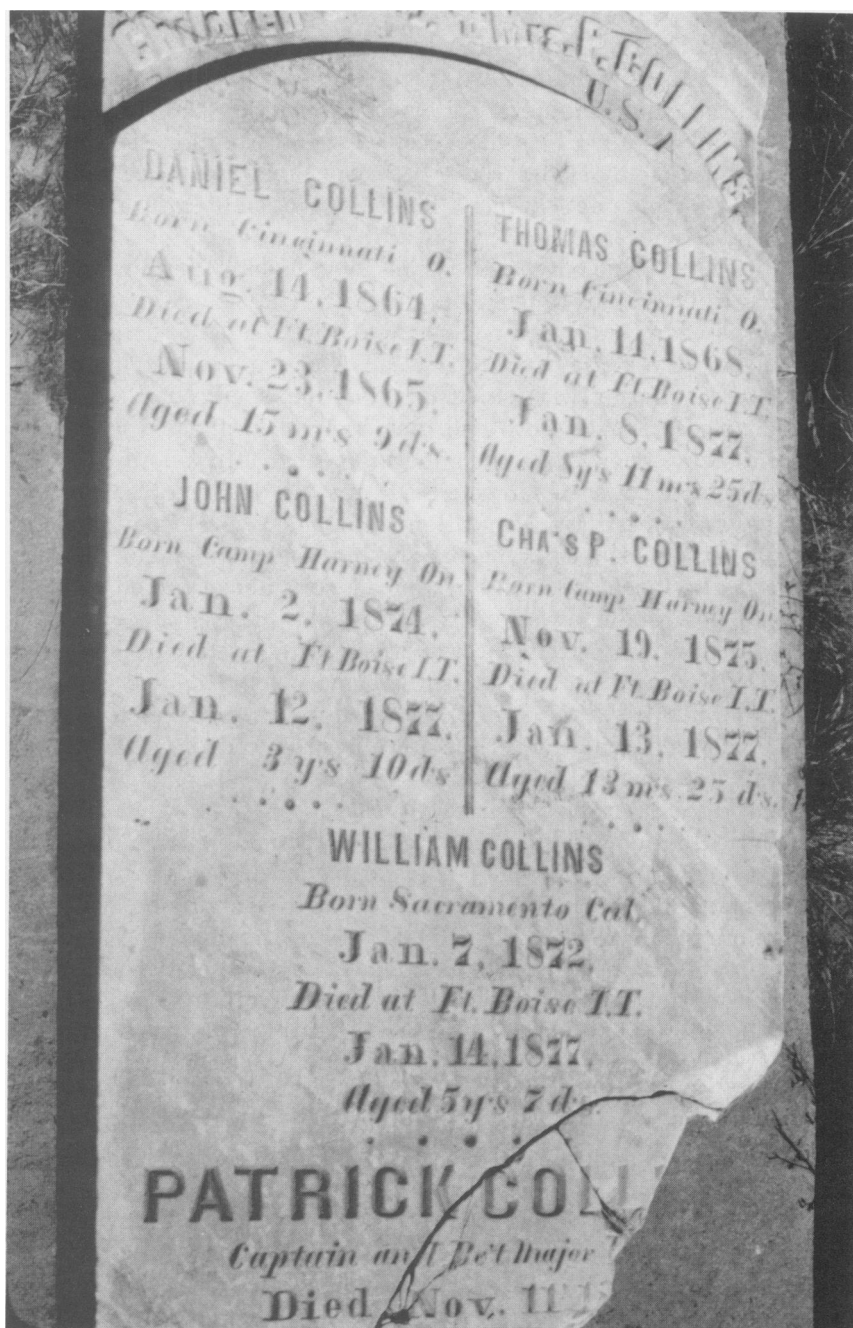


FIG. 1. Tombstone of the Collins family at the Military Cemetery, Fort Boise, Idaho.

church at Worth Matravers (Figure 2). His grave stone indicated that he utilized cow pox material to inoculate his wife and 2 sons in 1774, 22 years before Jenner's experiments in 1796 (Figure 3). Jesty's experiments were described in the American literature by Crookshank in 1889⁴ McCrae in 1900,⁵ and Gould in 1903.⁶ He has received scant attention since then. The excellent article by Bollet, the "History of Small Pox Vaccination", refers to Jesty in only one sentence.⁷ The older British literature did give him credit for his observations.⁸⁻¹⁵

Benjamin Jesty was a successful farmer, who lived at Yetminster and then moved to Downshay (Figure 4). He dealt in cattle and maintained a herd. In the year 1774, small pox was noted in the vicinity. Jesty had two milkmaids, Ann Notley and Mary Read, who had attended a brother and a nephew suffering with small pox. Neither acquired the disease despite this close contact. Both had previously been infected with cow pox. Farmer Jesty knew that a neighboring farmer, Mr. Elford of Chittenhall had several cows then infected with the pox. He took his wife and two small sons, Robert, age 2, and Benjamin, age 3, to Farmer Elford's fields. Using his wife's knitting needle and material from one of Elford's infected cows he inoculated the boys on one arm above the elbow and Mrs. Jesty below the elbow. He did not inoculate himself since he had had cow pox and was certain he was already protected. The boys got local reactions while Mrs. Jesty's arm became much inflamed and she became rather ill. Mr. Trowbridge, the local surgeon, was called to attend her. The boldness and novelty of the attempt produced "no small alarm in the family and no small sensation in the neighborhood".

All survived the experiment. Elizabeth Jesty (Figure 5) lived until 1824, and was buried beside her husband (Figure 6). In 1789 the surgeon, Mr. Trowbridge, during another small pox epidemic, inoculated the two Jesty boys and many of the other children in the neighborhood utilizing material from a known case of small pox. All of the children acquired small pox except the Jesty boys who remained well. On several occasions Jesty's sons were exposed to small pox without acquiring the disease, including at least one time when Farmer Jesty had them deliberately exposed. Farmer Jesty extended his practice of vaccination to others including Abigail Brown, as indicated on a plaque at the church at Worth Matravers (Figure 7).

In summary, Benjamin Jesty, observed the protection afforded milkmaids by the acquisition of cow pox; inoculated his wife and sons with cow pox material; proved that protection was provided by having the sons inoculated with small pox and exposing them to small pox; and used the technique in others.

In 1805 Mr. Jesty was invited by the Jennerian Society to visit London. The letter read as follows:



FIG. 2. Church at Worth Matravers.

London, July 25th, 1805.

"Sir,—I am desired by the medical establishment of this institution to propose to you that, provided you will come to town at your own convenience, but as soon as possible, to stay not longer than five days, unless you desire it, for the purpose of taking your portrait as the earliest inoculator for Cow Pock, at the expense of the institution, you will receive 15 guineas for your expenses, and the members of the establishment will be happy to show you any civility during your stay in London, on which account it is hoped you will be put to little or no expense.

I have the honor to remain, Sir,
Your Obedient, Humble Servant,
Will Sancho."

Mr. Jesty was reluctant to go. The family persuaded him to make the trip but could not convince him to acquire new clothes. He was accompanied by Robert Jesty, who consented to be inoculated again for the small pox. He had no ill effect.

Mr. Jesty was presented with a pair of very handsome gold-mounted lancets. His portrait was painted by Mr. M. W. Sharpe. Mr. Jesty was an impatient subject. He could only be persuaded to sit still if Mrs. Sharpe would play the piano. The following statement was also drawn up and signed by the members of the Jennerian Society and presented with the portrait.

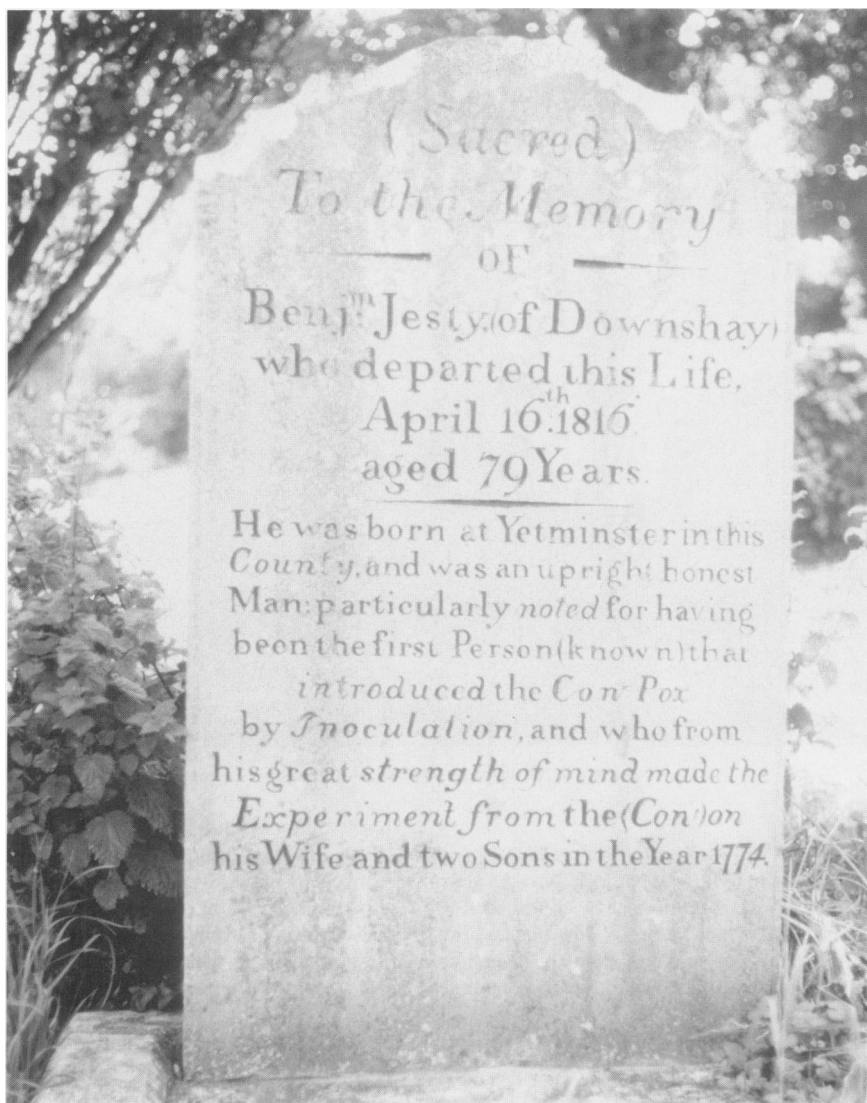


FIG. 3. Tombstone of Benjamin Jesty. It reads as follows:

(SACRED)
TO THE MEMORY
of
Benj^m Jesty, (of DOWNSHAY)
who departed this life
April 16th 1816
aged 79 years

He was born at Yetminster in this County, and was an upright honest Man; particularly noted for having been the first Person (known) that introduced the Cow Pox by Inoculation, and who from his great strength of mind made the Experiment from the (Cow) on his Wife and two Sons in the Year 1774.



FIG. 4. Benjamin Jesty's home at Downshay.

“Mr. Benjamin Jesty, farmer, of Downshay, in the Isle of Purbeck, having, agreeable to an invitation from the Medical establishment of the Original Vaccine Pock Institution, Broad Street, Golden Square, visited London in August, 1805, to communicate certain facts relating to the Cow Pock Inoculation, we think it a matter of justice to himself and beneficial to the Public, to attest that, among other facts, he has afforded decisive evidence of his having vaccinated his wife and two sons, Robert and Benjamin, in the year 1774, who were thereby rendered unsusceptible of the Small Pox, as appears from the exposure of all the parties to that disease frequently during the course of thirty-one years, and from the inoculation of the two sons for the Small Pox fifteen years ago. That he was led to undertake this novel practice in 1774, to counteract the Small Pox at that time prevalent where he then resided, from knowing the common opinion of the country ever since he was a boy, now about sixty years ago, that persons who had gone through the Cow Pox naturally (i.e.) by taking it from the cows, were unsusceptible of the Small Pox: by himself being incapable of taking the Small Pox, by having gone through the Cow Pox many years before; from having personally known many individuals who, after the Cow Pox, could not have the Small Pox excited; from believing that the Cow Pox was an affection free from danger; and



FIG. 5. Elizabeth Jesty. Inoculated with Cow Pox in 1774.

from his opinion that by the Cow Pock inoculation he should avoid engrafting various diseases of the human constitution—such as the evil, madness, lues, and many bad humours, as he called them.

“The remarkably vigorous health of Mr. Jesty’s wife and two sons, now thirty-one years subsequent to the Cow Pox, and his own healthy appearance, at this time seventy years of age, afford a singular proof of the harmlessness of that affection. But the public must, with particular interest, hear that during their late visit to town, Mr. Robert Jesty very willingly submitted publicly to inoculation for the Small Pox in the most rigorous manner, and that Mr. Jesty also was subjected to the trial of inoculation for the Cow Pock after the most efficacious mode, without either of them being infected.

“The circumstances in which Mr. Jesty purposely instituted the vaccine pock inoculation in his own family—viz., without any precedent, but merely from reasoning upon the nature of the affection among cows, and from knowing its effects in the casual way among men, his exemption from the prevailing popular prejudices, and his disregard of the clamorous reproaches of his neighbours, in our opinion will entitle him to the respect of the public for his superior strength of mind; but, further, his conduct in again furnishing such decisive proofs of the permanent anti-variola efficacy of the Cow Pock, in the present discontented state of many



FIG. 6. Tombstones of Benjamin Jesty and Elizabeth Jesty.

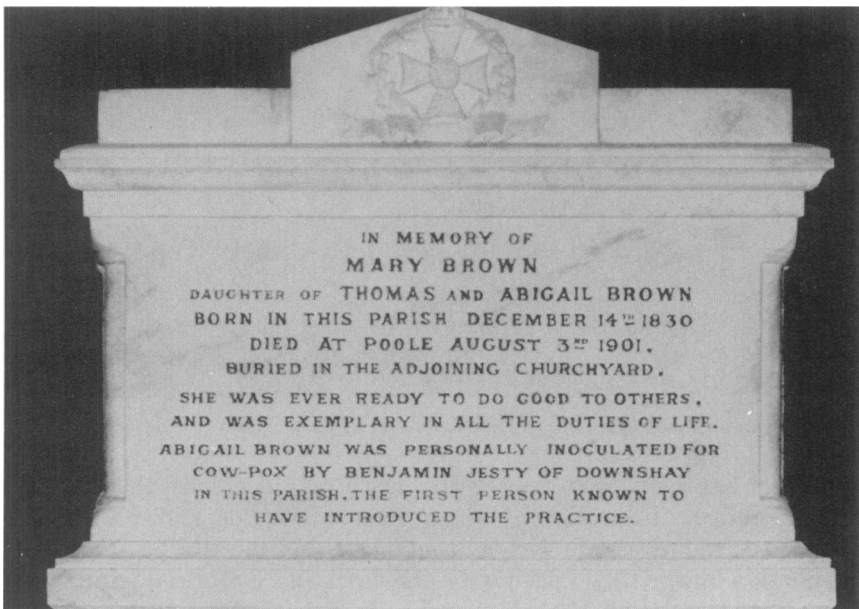


FIG. 7. Plaque in the church at Worth Matravers, in memory of Mary Brown, whose mother Abigail was inoculated with Cow Pox by Benjamin Jesty.

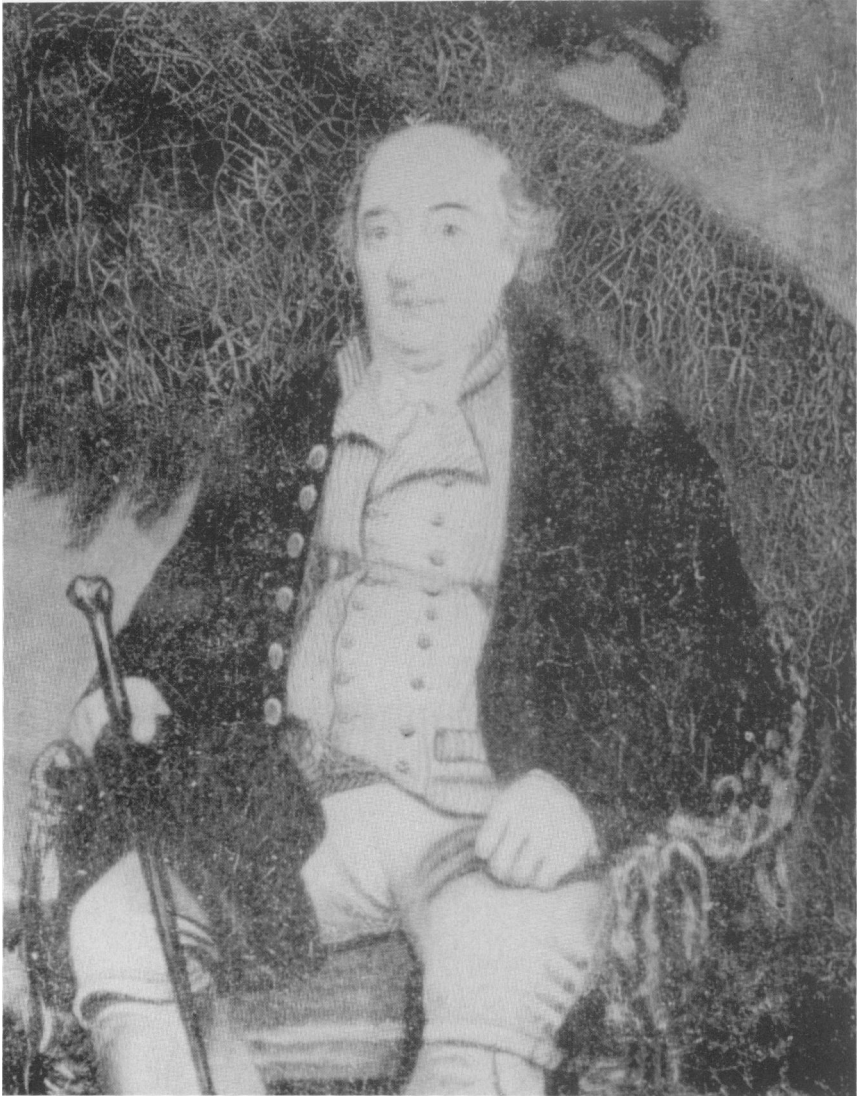


FIG. 8. Engraving by William Say from a portrait by M. W. Sharpe of Benjamin Jesty.

families, by submitting to inoculation, justly claims at least the gratitude of the country. As a testimony of our personal regards, and to commemorate so extraordinary a fact as that of preventing the Small Pox by inoculation for the Cow Pock thirty-one years ago, at our request a three-quarter length picture of Mr. Jesty is painted by that excellent artist Mr. Sharpe, to be preserved at the original Vaccine Pock Institution."

Later an engraving by William Say (Figure 8) was presented to the Original Vaccine Institution with the following inscription:

"Mr. B. JESTY, Farmer of Downshay, Isle of Purbeck, at 70, who inoculated his Wife and Two Sons for the Vaccine Pock in 1774, from his cows, at that Time disorder'd by the Cow Pock, and who subsequently from the most rigorous Trials have been found unsusceptible of the Small Pox. Having rationally set the Example of Vaccine Inoculation from his own knowledge of the Fact of Unsusceptibility of the Small Pox after casual Cow Pock in his own Person and in that of others, and from knowing the harmlessness of the Complaint. To commemorate the Author of these historical truths the Vaccine Institution have procured this portrait." (Extract from the Minutes of the Original Vaccine Institution, Broad Street, Golden Square.)

Edward Jenner ultimately received the acclaim of the medical profession for the discovery of small pox vaccination. Parliament voted him a stipend for his discovery. It is interesting that he was elected to the Royal Society not for the work on small pox but for his thesis on "The Natural History of the Cuckoo". Jenner deserves the credit he has received. Credit is also due to Jesty for he was the first to use the procedure and was first to prove its effectiveness.

ACKNOWLEDGMENTS

We wish to thank the following for assistance with this paper: Frank Kreipe, Chief, Medical Media, Boise Veterans Administration Medical Center. Maryann Duggan, Coordinator, Learning Resources Center, Boise Veterans Administration Medical Center. Bonnie Hirsch, Library Technician, Learning Resources Center, Boise Veterans Administration Medical Center. Miss Spencer Watson, current owner of Downshay Manor. Mr. Perks, Dorset County Librarian. Miss Margaret Holmes, Dorset County Archivist.

REFERENCES

1. The History of the Boise Veterans Administration Medical Center, unpublished.
2. Morbidity and Mortality Weekly Report: Laboratory-Associated Smallpox, England 27: 319-320, 1978.
3. Morbidity and Mortality Weekly Report: Followup on Small Pox, England. 27: 346, 1978.
4. CROOKSHANK, E. M.: History and Pathology of Vaccination, A critical inquiry. Philadelphia, Blakiston Son, and Co., 1889.
5. McCRAE, THOMAS: Benjamin Jesty: A Pre-Jennerian Vaccinator, *Johns Hopkins Hospital Bulletin*: 107: 42, 1900.
6. GOULD, G. M.: Medical discoveries by the non-medical. *JAMA* 40: 1477, 1903.
7. BOLLET, A. J.: Smallpox: The Biography of a Disease. *Resident and Staff Physician* 24: Aug 47, Sep 51, 1978.

8. The History of Inoculation and Vaccination: 17th International Congress of Medicine, Burroughs Wellcome Co., London p. 51, 1913.
9. TREVES, F: Highways and Byways in Dorset. New York, MacMillan and Co., p. 196, 1906.
10. HUTCHINS: History of Dorset. 701.
11. MEE, A: The Kings England: Dorset-Thomas Hardy's Country, Hodder and Stoughton, p. 320, 1939.
12. CURWEN, E. C.: Journal of Gideon Mantell. Oxford University Press, p. 106, 1940.
13. DIXON, C. W.: Small Pox. London: J & A Churchill, p. 249, 1962.
14. MACNALT, A. S.: The Prevention of Small Pox from Edward Jenner to Monckton Copeman. *Medical History* 12: 1-8, 1968.
15. COOPER, A. T. P.: Dorset Worthies No. 12; Benjamin Jesty. Dorset Natural History and Archaeological Society, Dorset, 1969.

DISCUSSION

DR. BEAN (Galveston): "I'm sure if we had the detailed history of the countryside in England, that there would have been many precursors of Jesty. Perhaps it is simply well to keep in mind what Francis Galton said about the discovery and credit eponyms in general. My belief is that eponyms have so far never been recorded or attached to the first describer or discoverer of a phenomenon or disease. But Galton simply said that 'in science credit always goes to the man who convinces the world, not the man to whom the idea first occurs'."

DR. HAMMARSTEN (Atlanta): "Actually, Dr. Bean, there are two other recorded instances of people suggesting or using cow pox inoculation before Jenner, one in England* and one in Holstein**. One exception to what Galton said might be Mendel—who gets the credit but who never convinced the public. His work lay buried until DeVries repeated the work, with primroses, and only then found Mendel's article."

DR. BEAN (Galveston): "That is not quite exact. As an example, Gregor Mendel's discovery is supposed to have been totally neglected until almost simultaneously in 1900 DeVries, Correns, and von Tschermak, having repeated the work independently, found out about Mendel's much earlier discovery. According to a fascinating bit of detective work done by Robert Olbey and Peter Gautrey, entitled *Eleven References to Mendel Before 1900* published in the *Annals of Science* 24: 7-20, No. 1, March 1968, in addition to an anonymous contributor to *Neuigkeiten* in the year 1865, ten others had reported and commented on Mendel's work. They include Hoffman [1869], Schmalhausen [1874], the Royal Society [1879], Focke [1880], Romanes [1881], Nageli and Peter [1885], Bailey [1892], Rolfe [1899] and Correns in 1899. He cites evidence that Charles Darwin referred to Hoffman's work of *Phaseolus* in his book, *The Effects of Cross and Self Fertilization in the Vegetable Kingdom*, 1876 and must therefore 'have had in his hands a brochure which contained a reference to Mendel's work only four years after its publication. There is internal support for the belief that Darwin read it before 1874'. Darwin was a passionate annotator but the marginalia in his copy of Hoffman's pamphlet suggest he may have skipped over the important details and concentrated on the summary and conclusion. The important point is that though Mendel was almost completely neglected and forgotten,

* Mr. Nash, a medical practitioner, made the suggestion in 1781, after observing that individuals who had had cow pox could not be inoculated with small pox.

** Peter Platt of Holstein in 1791 vaccinated his employer's three children. Three years later when small pox occurred in Schönwade, the vaccinated children were the only children not attacked by the disease.

there were networks of references which should have brought the material to light long before it really happened. The lesson seems to be that one citation in the correct context in a popular and definitive treatise is worth any number of reports out of context or in writing so obscure and ephemeral that no one would think of seeking and searching them out."

DR. UTZ (Washington): "My compliments, Jim, on this very interesting and new discovery. I have two questions. First, how did you become aware of it, and secondly—you may have said it, I may have missed it—what was the actual material he inoculated? Was it from a calf or a cow, or from one of the milkmaids who had lesions?"

DR. HAMMARSTEN (Boise): "The way I discovered it is that one of the co-authors (James E. Hammarsten), who has the same name that I have (he is my son), took his medicine clerkship at Oxford University. He visited Dr. Tattersall, a friend of ours, in Dorset. They visited the churchyard. The material that was used was described as from the teat of a cow."